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10/587,447	07/25/2006	Menno Willem Jose Prins	NL040059US1	1231

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PHILIPS ELECTRONICS NORTH AMERICA CORPORATION
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370 W. TRIMBLE ROAD MS 91/MG
SAN JOSE, CA 95131

EXAMINER

VARGAS, DIXOMARA

ART UNIT	PAPER NUMBER
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2859

MAIL DATE	DELIVERY MODE
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09/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/587,447

Applicant(s)

PRINS, MENNO WILLEM JOSE

Examiner

Dixomara Vargas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,7,9,10 and 15-27 is/are rejected.
- 7) ☒ Claim(s) 2,5,8 and 11-14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 07/25/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 18-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claimed invention is directed to a judicial exception to 35 U.S.C. 101 (i.e., an abstract idea) and is not directed to a practical application of such judicial exception (e.g., because the claim does not require any physical transformation and the invention as claimed does not produce a useful, concrete, and tangible result). The language in the claim suggest only a combination of instructions and lacks a tangible result at the end of the procedure.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-4, 6-7, 15, 18, 20-22 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Freeman et al. (US 6,194,900 B1).

With respect to claim 1, Freeman discloses a device (Figure 24A) for on-chip magnetic resonance measurements for use with a first orienting magnetic field, the device comprising (Column 1, lines 5-18): a chip, said chip comprising (500A), on-chip means for creating a second electromagnetic field to excite precession of oriented spin magnetic moments in a sample to be analyzed (Column 33, lines 15-20 and 38-58; Figure 24A, coil #516A), and at least one magnetic sensor for on-chip detection of a magnetic precession of the spin magnetic moments about the first orienting magnetic field in the sample to be analyzed (Column 34, lines 21-50; Figure 24A, coil #516A).

5. With respect to claim 3, Freeman discloses the chip laying lying in a plane (as seen on Figure 24A), wherein said on-chip means for creating a second electromagnetic field and said magnetic sensor are positioned adjacent each other in the plane of the chip (Column 33, lines 47-58).

6. With respect to claim 4, Freeman discloses the chip laying in a plane (as seen on Figure 24A), wherein the means for creating a second electromagnetic field comprises a conductor adjacent the magnetic sensor (Column 33, lines 47-58).

7. With respect to claim 6, Freeman discloses a first orienting magnetic field generator external to the chip (Figure 25, #554).

8. With respect to claim 7, Freeman discloses on-chip first orienting magnetic field generator (Figure 25, #516).

9. With respect to claim 15, Freeman discloses said spin magnetic moments are nuclear spin magnetic moments (Abstract).

10. With respect to claim 18, Freeman discloses a method for performing on-chip magnetic resonance measurements, the method comprising: orienting spin magnetic moments inside a sample in a first orienting magnetic field, exciting precession of said spin magnetic moments inside said sample to be analyzed (Column 33, lines 15-20 and 38-58; Figure 24A, coil #516A), and on-chip detecting of spin magnetic moments precession (Column 34, lines 21-50; Figure 24A, coil #516A).

11. With respect to claim 20, Freeman discloses the step of generating the spin magnetic moments in the first magnetic field, is performed by the first magnetic field being generated external to the chip (Figure 25, #550 and #554).

12. With respect to claim 21, Freeman discloses the step of generating the first orienting magnetic field performed by a magnetic field generator integral with the chip (Figure 25, #516).

13. With respect to claim 22, Freeman discloses the step of exciting precession of spins inside a sample to be analyzed performed by generating a second magnetic field (Column 35, lines 26-42).

14. With respect to claim 27, Freeman discloses the use of the device in claim 1 for biological sample analysis or chemical sample analysis (Abstract).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US 6,194,900 B1) in view of Stewart Bushong (Magnetic Resonance Imaging Physical and biological principles).

17. With respect to claim 9, Freeman discloses said first orienting magnetic field generator is a magnet (Figure 25, #550). Furthermore, Freeman discloses the claimed invention as stated above in paragraphs 4-7 except for specifying the magnet to be a permanent magnet. However, Bushong discloses the use of permanent magnets (Page 30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a permanent magnet as taught by Bushong with Freeman's device for on-chip magnetic resonance measurements for use with a first orienting magnetic field, for the purpose using a well known magnet type to produce a static magnetic field in the sample.

18. With respect to claim 10, Freeman discloses said first orienting magnetic field generator is a magnet (Figure 25, #550). Furthermore, Freeman discloses the claimed invention as stated above in paragraphs 4-7 except for specifying the magnet to be an electromagnet. However, Bushong discloses the use of electromagnets (Page 30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an electromagnet as taught by Bushong with Freeman's device for on-chip magnetic resonance measurements for use with a first orienting magnetic field for the purpose using a well known magnet type to produce a static magnetic field in the sample.

19. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US 6,194,900 B1) in view of Hosoki et al. (US 5,585,722 A).

With respect to claim 16, Freeman disclose the claimed invention as stated above in paragraph 4 except for specifying that said spin magnetic moments are electron spin magnetic moments. However, Hosoki discloses spin magnetic moments as electron spin magnetic moments (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have spin magnetic moments as electron spin magnetic moments as taught by Hosoki with Freeman's device for on-chip magnetic resonance measurements for use with a first orienting magnetic field for the purpose of using a known method of imaging a sample to examined said sample within an electromagnetic field.

20. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US 6,194,900 B1) in view of Fiat (US 6,294,914 B1).

With respect to claim 17, Freeman disclose the claimed invention as stated above in paragraph 4 except for specifying that said spin magnetic moments are coupled-spin magnetic moments. However, Fiat discloses spin magnetic moments as coupled-spin magnetic moments (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have spin magnetic moments as coupled-spin magnetic moments as taught by Fiat with Freeman's device for on-chip magnetic resonance measurements for use with

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a first orienting magnetic field for the purpose of using a known method of imaging a sample to examined said sample within an electromagnetic field.

Allowable Subject Matter

21. Claims 2, 5, 8, 11-14, 19 and 23-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
22. Claims 19 and 23-26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
23. The following is a statement of reasons for the indication of allowable subject matter:
 - a. With respect to claim 2, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a device for on-chip magnetic resonance measurements for use with a first orienting magnetic field, the device comprising a magnetic sensor being a magneto-resistance sensor in combination with the remaining limitations of the claim 1 above.
 - b. With respect to claim 5, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a device for on-chip magnetic resonance measurements for use with a first orienting magnetic field, the device comprising the chip laying lying in a plane, wherein the means for creating a second electromagnetic field comprises two conductors, each of the conductors being positioned adjacent one of two opposite sides of the magnetic sensor at a same position with respect

to the plane of the chip in combination with the remaining limitations of the claim 1 above.

c. With respect to claim 8, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a device for on-chip magnetic resonance measurements for use with a first orienting magnetic field, the device comprising the chip has two major surfaces opposite each other, the means for creating a second electromagnetic field and the magnetic sensor being located on a first major surface and the on-chip first orienting magnetic field generator being positioned on the second major surface in combination with the remaining limitations of the claims 1 and 7 above.

d. With respect to claim 11-13, the claims have been found allowable due to its dependency on claim 2 above.

e. With respect to claim 14, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a device for on-chip magnetic resonance measurements for use with a first orienting magnetic field, the device comprising the first orienting magnetic field generator comprises means to vary a magnetic field strength in combination with the remaining limitations of the claims 1 and 6 above.

f. With respect to claim 19, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for performing on-chip magnetic resonance measurements, the method comprising: the step wherein on-chip detecting of spin magnetic moments precession is performed by a

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magneto-resistance sensor in combination with the remaining limitations of the claim 18 above.

g. With respect to claim 23, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for performing on-chip magnetic resonance measurements, the method comprising: the step of exciting precession of spins inside a sample to be analyzed performed by sweeping the second magnetic field over at least one of the following: a frequency range, an amplitude range in combination with the remaining limitations of the claim 18 above.

h. With respect to claim 24, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for performing on-chip magnetic resonance measurements, the method comprising: the step of sweeping the first orienting magnetic field over at least one of the following: a frequency range, an amplitude range in combination with the remaining limitations of the claim 18 above.

i. With respect to claim 25, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for performing on-chip magnetic resonance measurements, the method comprising: the step wherein said sample comprises different types of magnetic particles or molecules in combination with the remaining limitations of the claim 18 above.

j. With respect to claim 26, the claim has been found allowable due to its dependency on claim 25 above.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252. The examiner can normally be reached on Monday to Thursday from 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dixomara Vargas
Patent Examiner
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